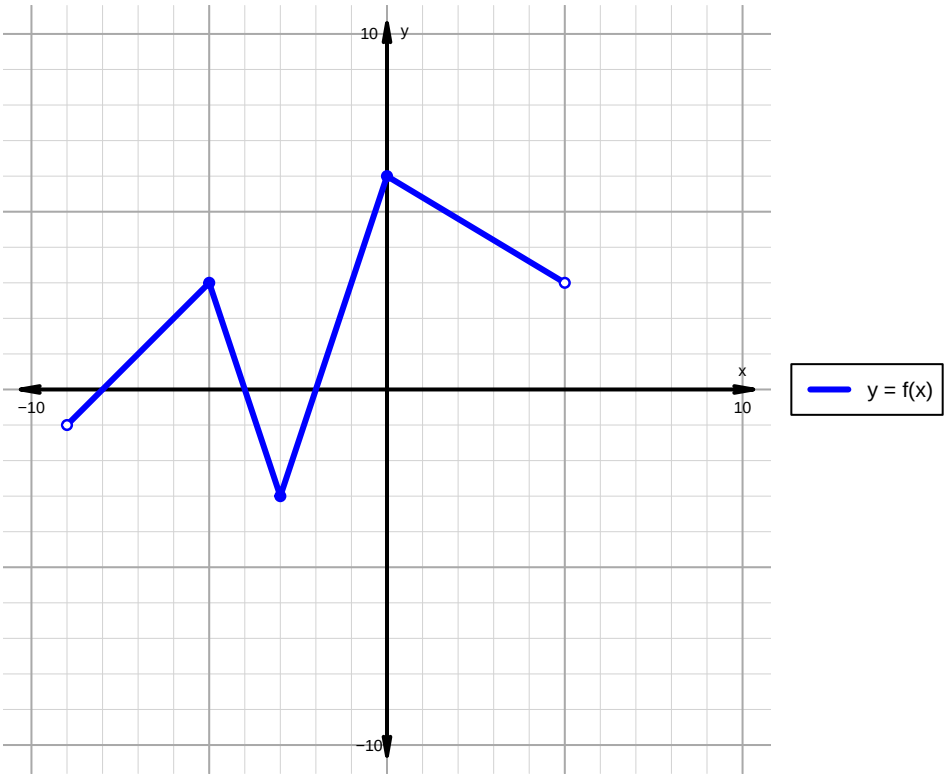
Name: Date:

## Intervals, Transformations, and Slope Solution (version 99)

1. The function $f$ is graphed below.




Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate $x$ values; this is standard.

| Feature | Where |
|---|---|
| Positive | $(-8,-4) \cup (-2,5)$ |
| Negative | $(-9,-8) \cup (-4,-2)$ |
| Increasing | $(-9,-5) \cup (-3,0)$ |
| Decreasing | $(-5,-3) \cup (0,5)$ |
| Domain | $(-9,5)$ |
| Range | $(-3,6)$ |

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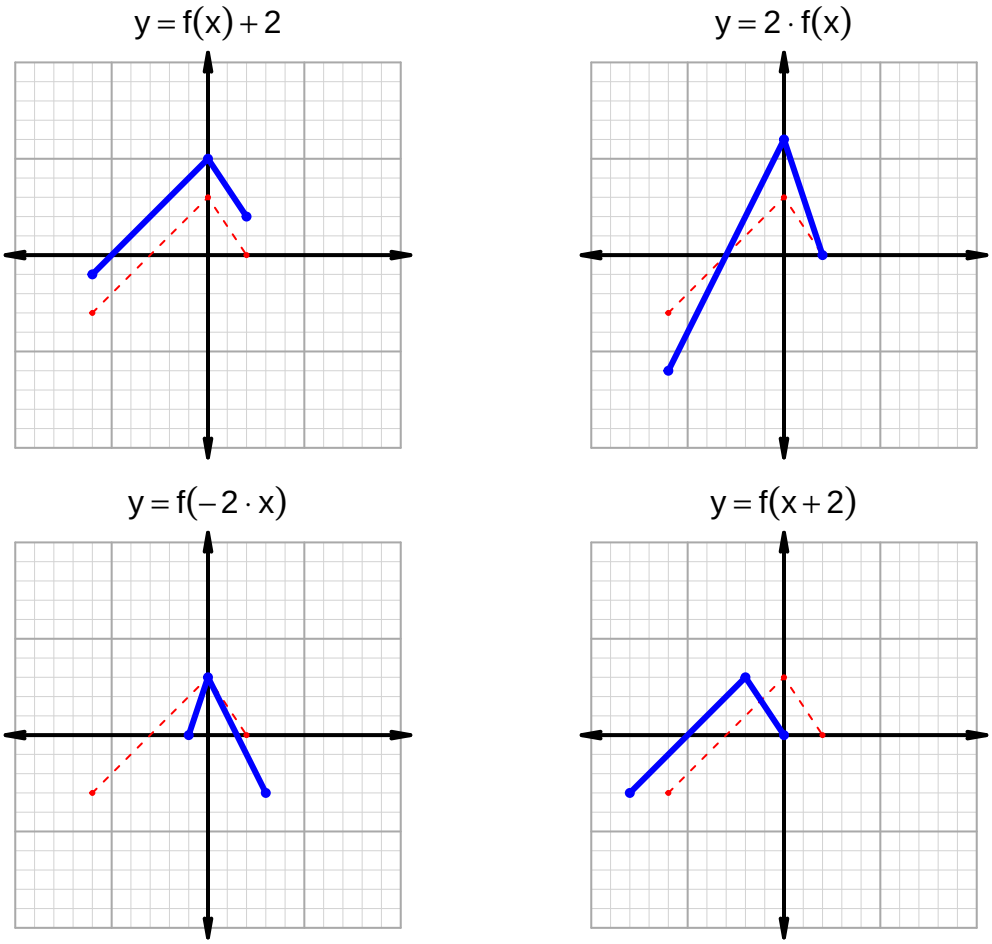
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.




3. Let function $g$ be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 14$ and $x_2 = 26$. Express your answer as a reduced fraction.

| $x$ | $g(x)$ |
|---|---|
| 14 | 93 |
| 26 | 66 |
| 66 | 14 |
| 93 | 26 |

$\frac{g(26)-g(14)}{26-14} = \frac{66-93}{26-14} = \frac{-27}{12}$

The greatest common factor of -27 and 12 is 3. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-9}{4}$$